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A New Population Record of *Henckelia Lyrata* (Gesneriaceae): A Critically Endangered Endemic Species from Southern Western Ghats, India

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ABSTRACT

Henckelia lyrata (Wight) A.Weber & B.L.Burtt hitherto considered as a critically endangered species confined to Tamil Nadu and Kerala with only small number of population reported in wild from Courtallum hills, Tenkasi district, Tamil Nadu and from Idduki district, Kerala. The present record of this species with populations consisting of about 500 individuals from the High Wavy Mountains of Theni district, Tamil Nadu, extends its range of distribution about 180 km away from the type locality.

Keywords: *Henckelia lyrata*, Western Ghats, Megamalai Wildlife Sanctuary, Theni district, Tamil Nadu, Distribution.

1. INTRODUCTION

The genus *Henckelia* was the genus Henckelia was described by Sprengel (1817:402) and was re-established by Weber & Burtt (1998[“1997”]) and redefined recently by Weber *et al.*, (2011). Those species traditionally placed in Didymocarpus and Chirita in south Indian and Sri Lankan floras are now treated under Henckelia. It now comprises roughly the species traditionally placed in *Didymocarpus* and *Chirita* in the South Indian and Sri Lankan floras (Gamble, 1924; Theobald & Grupe, 1981; Nayar *et al.*, 2006). Even though the genus had priority over its later homonym *Didymocarpus* Wallich (1819: 378), in view of its wider usage the latter name was conserved (Vitek et al., 2000), separating them by an array of morphological characters, to give a more natural taxonomic unit, assigning *H. incana* (Vahl) Spreng., as the type species. The genus *Henckelia* comprises about 70 -73 species distributed in the world of which 63 species are recoded in Indian Subcontinent (southern and North Eastern India, Sri Lanka, , Nepal, Bhutan), southern China, Peninsular Malaysia, Taiwan, northern Vietnam, northern Laos and northern Thailand (Middleton *et al.*, 2013; Möller*et al.*, 2017; POWO 2021, Sirimongkol *et al.*, 2019). Presently, there are 34 species of the genus reported in India, of which 13 species are reported to be endemic to the

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Western Ghats (Janeesha and Nampy, 2015, 2020; Krishna and Lakshminarasimhan, 2018). During floristic studies on the Megamalai Wild Life Sanctuary, Tamil Nadu, India, about 500 individuals of a *Henckelia* species was found growing as a lithophyte in small rocky hilllocks of Varsanadu Range and Kandamanur Range. On critical study, it was identified as *H. lyrata* Weber and Burtt 1998 (1997) (synonym *Didymocarpus lyratus* Wight). It is considered as a critically endangered species and an endemic confined to Courtallum hills in Tamil Nadu and Iddukki district of Kerala (Gamble 1925; Geethakumary *et al.* 2016), which is characterized mainly by large lyrate pilose leaves. Earlier this species was known by the single type collection of Robert Wight in 1835 from Courtallum hills, Tamil Nadu. Perusal of literature revealed that this species was recently rediscovered from Idduki district of Kerala by Geethakumary *et al.* (2016) after 169 years and lectotypified by Janeesha and Nampy, 2016. Geethakumary *et al.* (2016). stated that only a small extant population from the southern Western Ghats of Idukki district, but in the Megamalai Wildlife Sanctuary we have observed 500 individuals in 0.02 Sq Km. area. The present collection of this species from the Megamalai Wildlife Sanctuary shows that it is collected after 180 km away from its type locality in Southern Western Ghats and also found that it is poorly represented in regional herbaria. Hence it forms an addition to the MH from Theni district for future studies. The present collection also forms an extended distribution of the species from High Wavy Mountains, Tamil Nadu. Brief descriptions with photographs are provided here to facilitate easy identification and help conserving the endemic taxon.

2. TAXONOMIC TREATMENT

Henckelia lyrata (Wight) A. Weber & B.L. Burtt, Beitr. Biol. Pflanzen 70: 349. 1998. *Didymocarpus lyrata* Wight, Ic. 10, t. 1350. 1850. (Fig.1)

Type: — INDIA. Tamil Nadu: Tirunelveli (Tenkasi) District, Courtallum hills, September 1835, *Wight* 1835.559 (lectotype E00155173!, isolectotypes E00155174!, E00155175!; designated by Janeesha and Nampy, 2015).

Didymocarpus lyratus Wight var. *protractus* C.B.Clarke in A.DC. & C.DC., Monogr. Phan. 5: 102. 1883; A.N. Henry et al., Fl. Tamil Nadu Ind., Ser I: Analysis 2: 132. 1987. Lectotype (designated by Vitek et al., 2000): INDIA, Pulney hills, Beddome 8505 (BM).

Perennial herbs, acaulescent; rhizome erect, short, thickened. Leaves basal, numerous, ovate, 6–8 × 5.5–9 cm, subcordate at base, margin shallowly to doubly crenate-lobulate, the lobes irregularly crenate, surface usually rugose, venation more or less conspicuous, villous above and densely along the nerves beneath, membranous; lateral nerves 5 pairs, forked near the margins; petioles elongated in older leaves, winged and more or less lacerate, the younger and central leaves subsessile, more woolly, ca 10 cm long, lyrate, densely villous along the mid-suture. Inflorescence 5–8; subcorymbose; peduncle ca 12.5 cm long, villous with septate hairs, trichotomously branched, ca 15 flowered; bracts linear-ovate, villous, ca 2 mm long, obtuse at apex, villous and glandular; pedicels 3–4 mm, up to 10 mm in fruit. Flowers zygomorphic, pentamerous. Calyx 5-lobed, lobes equal, linear or narrowly obovate, base connate, apex acuminate or rarely blunt with a few multicellular hairs. Corolla pale blue; tube not constricted at throat; tube 4–5 mm long, lobes pale blue, rounded, pubescent towards back, lower 3 lobes 3–3.5 mm long, upper 2 lobes smaller, 2–2.5 mm long. Stamens 2; filaments hairy, ca. 2 mm long, dilated below; anthers yellow, glabrous, ca 1 mm long, cells divaricate; staminodes 2, rarely 0, glabrous, slightly swollen and tapering at tip. Ovary oblong, glandular pubescent, ca 2 mm long; style glabrous, ca 3 mm long; stigma capitate. Capsule linear, subcylindrical, 4-angular, straight or slightly curved, ca 15 × 1.5 mm, glandular pubescent, dehiscing along one suture.

Flowering & Fruiting: June–December.

Distribution: Southern Western Ghats of Tamil Nadu & Kerala

Specimen examined: India, Tamil Nadu, Theni district, MWLS, Kandamanur Range, 09°43.547'' N & 077°28.044'' E, 05.12.2019, *Murugan & Arumugam* 147244 (MH. Tamil Nadu, Ramnad district, Kendiparai slopes-Ayyanarkoil, 23.09.1971, *E. Vajravelu* 38715; Kumbumedu, 14.03.1970, *E. Vajravelu* 33767; Yanimutti Rock-Mudaliaruthu, 13.12.1972, *E. Vajravelu* 39412 (MH); Virudhunagar district, Srivilliputhur Wildlife sanctuary, 24.10.2013, *Kabeer & G. Gnanashekaran* 130400 (MH). Kerala, Quilon District, Kazhuthurutty, Thenmala, 500 m, 20.12.1978, *C.N. Mohanan* 59572 (MH00127485); s.loc., 26.04.2016, Janeesha & Santhosh Nampy 14019 (MH00127483).

Notes: Geethakumary *et al.* (l.c.) reported that only few individuals of this species was found in the Idukki district, and based on the number individuals they have fixed the IUCN criteria as Endangered but the present study reports new populations for the first time harbouring around 500 individuals which is significant and useful for the future conservation of this stenoendemic species.

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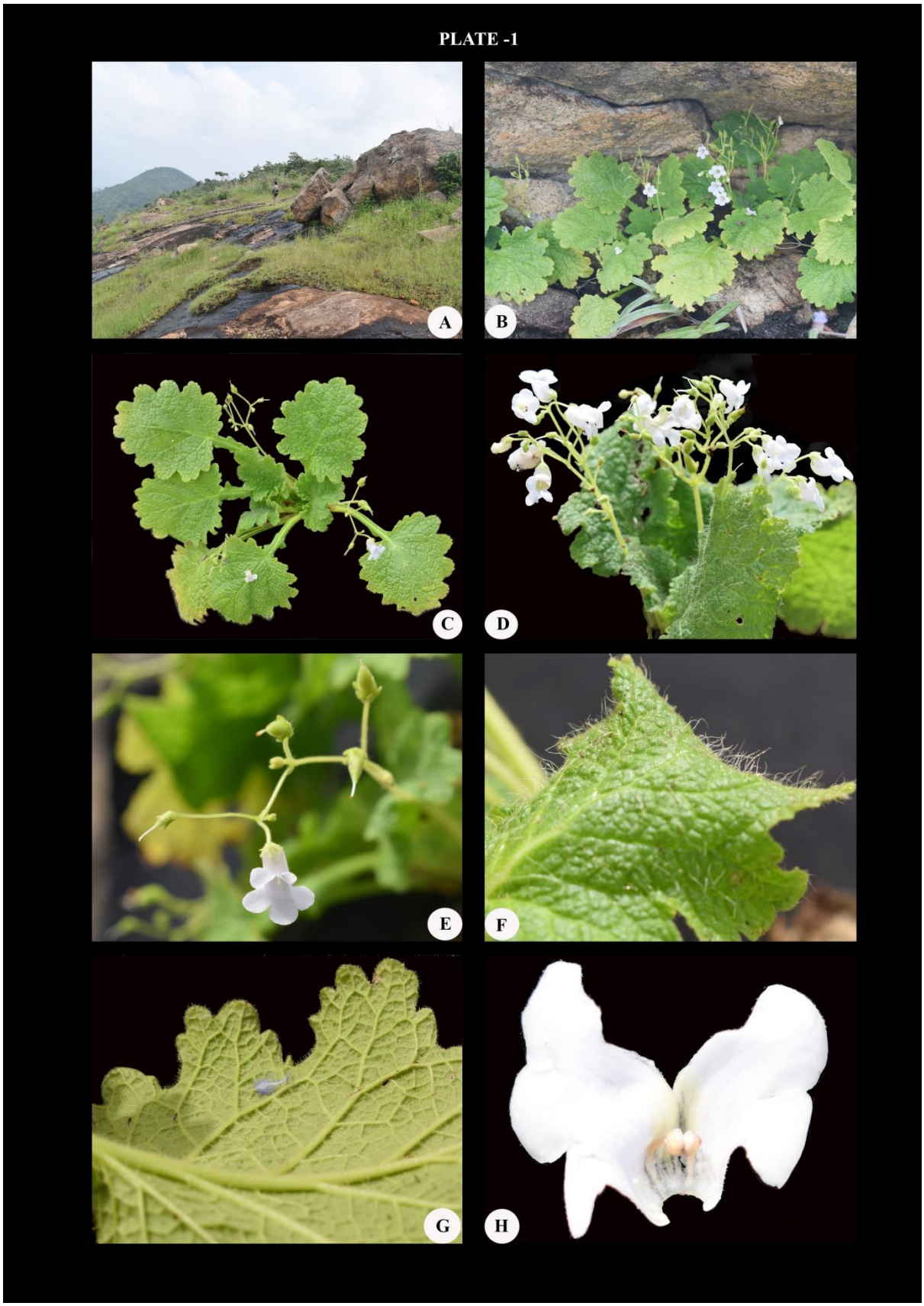

Figure 1: ***Henckelia lyrata*** **(Wight) A.Weber & B.L.Burtt A.** Habitat, **B.** Habit, **C.** Entire plant, **D.** Inflorescence , **E.** Flower and fruit , **F.** Leaf upper side **G.** Leaf lower side, **H.** Corolla split open.

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Authors Contribution:

All authors have contributed equally to manuscript.

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Ethical approval

The ethical guidelines for plants & plant materials are followed in the study for species collection & identification.

Conflicts of interest:

The authors declare no conflict of interest.

Data and materials availability

All data associated with this study are present in the paper.

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